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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/597,785	08/08/2006	Philippe Desbois	12810-00337-US1	6310

30678 7590 09/21/2007  
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WASHINGTON, DC 20036

EXAMINER
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ASINOVSKY, OLGA

ART UNIT	PAPER NUMBER
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1711

MAIL DATE	DELIVERY MODE
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09/21/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

**Application No.**

10/597,785

**Applicant(s)**

DESBOIS, PHILIPPE

**Examiner**

Olga Asinovsky

**Art Unit**

1711

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 08 August 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date 08/08/06.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Claim Rejections - 35 USC § 112***

1. Claim 11 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
2. Claim 11 provides for the use of the impact-resistant polystyrene, but, since the claim does not set forth any steps involved in the method/process, it is unclear what method/process applicant is intending to encompass. A claim is indefinite where it merely recites a use without any active, positive steps delimiting how this use is actually practiced.

Claim 11 is rejected under 35 U.S.C. 101 because the claimed recitation of a use, without setting forth any steps involved in the process, results in an improper definition of a process, i.e., results in a claim which is not a proper process claim under 35 U.S.C. 101. See for example *Ex parte Dunki*, 153 USPQ 678 (Bd.App. 1967) and *Clinical Products, Ltd. v. Brenner*, 255 F. Supp. 131, 149 USPQ 475 (D.D.C. 1966).

### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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4. Claims 1-6, 8-10 and 12-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Desbois et al U.S. Patent 6,825,271 in view of Pub. No. 2006/0058177.

Desbois discloses impact-modified polystyrene produced by anionically polymerizing styrene in the presence of an anionic polymerization initiator and of a mixture of a styrene-butadiene two-block copolymer as a rubber, column 2, lines 27-30. A rubber is a styrene-butadiene block copolymer that is polymerized in a first reactor by anionic polymerization process in the presence of an alkali metal organyl compound with the advantageous to use organolithium compound in cyclohexane=solvent, column 3, lines 1-4 and column 4, lines 51-56, for the claimed stage1) in claim 1. The polymerization of styrene is carried out in the presence of a trialkylaluminum or dialkylmagnesium compound, column 3, lines 59-60. Magnesium organyl compound or aluminum organyl compound known as retarder or rate regulator, column 3, line 23. The polymerization of impact-modified polystyrene (HIPS) is carried out continuously in a solvent and in the present of the rate regulator including alkylmagnesium compound or aluminum organyl compound, column 3, lines 22-40 and column 6, lines 38-43. Alkylmagnesium compound and alkylaluminum compound have interchangeability effect. In the working example H1 the inventor discloses butylmagnesium compound. The triethylaluminum and/or triisobutylaluminum, column 3, line 35-40 is readable in the present claims 1, 5, 16, 17, 18. The process is carried out continuously such that rubber particles are polymerized first in the presence of solution of butyllithium in cyclohexane, column 4, lines 51-56 for the claimed stage 1); than styrene is added to the reaction mixture, for

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the claimed stage 2), for the present claim 1, column 4, lines 51-58. The HIPS is suitable for producing fibers, films or moldings, column 4, line 26, for the present claim 12.

The difference between the present claim 1 and Desbois' 271 is the requirement in the present claim 1 that after stage 1) and prior stage 2) an organylaluminum compound and an alkali metal hydride are added to the rubber solution. Desbois' 271 does not disclose the addition of an alkali metal hydride.

Desbois reference to Pub. No. 2006/0058177 discloses an initiator composition for anionic polymerization comprising an alkali metal hydride selected from LiH, NaH and KH, and at least one organylaluminum compound [0023], for all the present claims. The organylaluminum compound improves the solubility of the alkali metal hydride in the solvent, and thus improves the activity of the alkali metal hydride [0024]. The organyllithium compounds and alkali metal hydride work within the same expectation such as an anionic polymerization initiator. The organyllithium compound has high price, which makes the final polymer product more expensive [0011]. The polar compound such as tetrahydrofuran can be present, page 1, line 6; [0078] and [0106].

It would have been obvious to one of ordinary skill in the art to modify a method for producing by anionic polymerization of HIPS product in Desbois invention Patent 6,825,271 such that the alkali metal hydride is added together with an organylaluminum

compound in the second stage polymerization as by teaching in Pub. No. 2006/0058177 for the purposes to improve anionic polymerization of the styrene monomer to form a hard matrix in the presence of rubber.

Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Desbois et al U.S. Patent 6,825,271 in view of Pub. No. 2006/0058177 as applied to claims 1-6, 8-10 and 12-20 above, and further in view of Knoll et al U.S. Patent 6,593,430.

The primary references do not clearly disclose using tetrahydrofuran compound as an accompanied concomitant during preparation of the rubber solution.

Knoll discloses an anionic polymerization of diene/styrene block copolymer in the presence of a randomizer such as tetrahydrofuran, which serves as the random distribution of the dienes and vinylaromatic units in the soft block (B/S). Randomizer is a donor solvent to control the rubber block copolymer structure, column 3, lines 1-12.

It would have been obvious to one of ordinary skill in the art to employ tetrahydrofuran as by teaching in Knoll invention in to a process for an anionic polymerization of a rubber block copolymer in each of the primary reference to Desbois '271 and Desbois reference Pub. No 2006,0058177 as a benefit to control the structure of the rubbery block copolymer.

### ***Conclusion***

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. References have been considered.

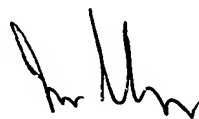
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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Olga Asinovsky whose telephone number is 571-272-1066. The examiner can normally be reached on 9:00 to 5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Seidleck can be reached on 571-272-1078. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

O.A.  
September 15, 2007



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